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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/832,171

04/10/2001

Hitoshi Ota

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06/01/2004

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EXAMINER

SHOSHO, CALLIE E

ART UNIT

PAPER NUMBER

1714

DATE MAILED: 06/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. 09/832,171	Applicant(s) OTA ET AL.
Examiner Callie E. Shosho	Art Unit 1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-14,16-27 and 29-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-14,16-27 and 30-36 is/are rejected.
- 7) ☒ Claim(s) 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/23/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. All outstanding rejections are overcome by applicants' amendment filed 3/18/04.

Applicant submitted IDS on 2/23/04. Given that a reference cited in the IDS, namely, EP 851005 is used to set forth new grounds of rejection as described in paragraph 3 below and given that the new grounds of rejection are necessitated by the amendment filed 3/18/04, the following action is final (see MPEP 609 (a)ii).

Claim Objections

2. Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 1 has been amended to recite that the dispersion has pigment concentration of from about 5 to about 50% by weight. Claim 2, which depends on claim 1, discloses that the dispersion comprises pigment concentration of not higher than 50%. Thus, claim 2 fails to further limit the scope of the claim on which it depends given that while claim 1 is limited to pigment concentration of 5-50% and thus, lower limit of pigment concentration of 5%, claim 2 encompasses pigment amounts "not greater than 50%" which clearly encompasses amount of pigment less than 5%, i.e. 1%, 3%, etc. Claim 2 is broader than claim 1 in terms of pigment concentration and thus, claim 2 fails to further limit the scope of claim 1.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 32-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 32 and 33 have been amended to recite that the solid component of the recording liquid is present in amount by weight that is less than an amount by weight of substituents "other than water" in the liquid component of the recording liquid. The scope of the claim is confusing because it is not clear what ingredients are encompassed by the phrase "other than water". That is, it is not clear if the recitation "substituents other than water" encompasses substituents other than the wetting agent, solvent, surfactant, and polyvalent metal ions recited in the claim. It is suggested that claim 32 be amended to recite "the solid component of the recording liquid being present in an amount by weight that is less than the amount by weight of the wetting agent, surfactant, solvent, and polyvalent metal ions present in the liquid component of the recording liquid".

Similar suggestion is made in claim 33 which recites similar claim language as that of claim 32.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 7-14, 16-22, 30-31, and 33-36 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 851005.

EP 851005 discloses process for preparing pigment dispersion which comprises (a) pigment surface treatment step of introducing hydrophilic group such as sulfonic group directly onto surface of the pigment in an amount of 10×10^{-6} equivalents or larger per g of pigment wherein the pigment includes CI Pigment Blue, Red, and Yellow, quinacridone pigments and phthalocyanine pigments, (b) dispersion step of dispersing surface treated pigment in admixture with wetting agent such as ethylene glycol and water, and (c) adding resin such as alkali-soluble resin for providing dispersability during the dispersion step to form pigment dispersion wherein the pigment dispersion comprises polyvalent metal ion such as calcium, magnesium, iron, and nickel in amount of up to 80 times the neutralization equivalent of the sulfonic acid groups contained per g of dispersion. The resulting pigment dispersion is used in ink jet inks which are produced by combining the pigment dispersion with water and dispersant. It is further disclosed that the dispersion step results in a dispersion with pigment concentration of 5-70% and that the resin is added to the dispersion step in amount of 0.1-200 parts per 100 parts pigment. The resin is a dispersant such as styrene acrylic acid copolymer possessing, for instance, molecular weight of 7000 and acid number of 200. Although there is no disclosure of the glass transition

temperature of the resin, given that it is well known that styrene possesses glass transition temperature of 100 °C and acrylic acid possesses glass transition temperature of 105 °C, it is clear that the glass transition temperature of the resin will be greater than 50 °C as required in present claim 11. From example 3, for instance, it is seen that the amount of pigment and resin present in the pigment dispersion is greater than the amount of wetting agent and polyvalent metal ion present in the pigment dispersion (page 2, lines 10-12, page 3, line 53-page 4, line 4, page 6, lines 9-15, 32-33, and 50-56, page 7, lines 43-40 and 46-47, and page 9, lines 48-49). Although there is no disclosure of the surface tension of the ink, given that EP 851005 discloses ink identical to that presently claimed, it is clear that the ink would inherently possess surface tension as presently claimed.

In light of the above, it is clear that EP 851005 anticipates the present claims.

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 851005 in view of Takada et al. (U.S. 6,454,403).

The disclosure with respect to EP 851005 in paragraph 6 above is incorporated here by reference.

The difference between EP 851005 and the present claimed invention is the requirement in the claims of specific wetting agent.

EP 851005 discloses the use of wetting agent such as ethylene glycol.

Takada et al. disclose the equivalence and interchangeability between ethylene glycol and acetylene alcohol identical to that presently claimed as solvents used to prevent ink from drying (col.10, lines 16-17 and col.10, lines 61-col.11, line 16).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use acetylene alcohol as the wetting agent in the pigment dispersion of EP 851005 and thereby arrive at the claimed invention.

9. Claims 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 851005 in view of Fujimatsu et al. (U.S. 5,913,971).

The disclosure with respect to EP 851005 in paragraph 6 above is incorporated here by reference.

The difference between EP 851005 and the present claimed invention is the requirement in the claims of specific type of printer used to print ink.

EP 851005 generically disclose that the ink is for ink jet printer.

Fujimatsu et al., which is drawn to ink jet ink, disclose that ink jet inks can be printed with drop-on-demand printers which are well known to energize the ink by dynamic or thermal energy in order to eject ink from printer and produce printed image (col.6, lines 55-61).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to print ink of EP 851005 with drop-on-demand printer, and thereby arrive at the claimed invention.

10. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 851005.

The disclosure with respect to EP 851005 in paragraph 6 above is incorporated here by reference.

The difference between EP 851005 and the present claimed invention is the requirement in the claims of amount of wetting agent.

EP 851005 discloses using wetting agent such as ethylene glycol when forming pigment dispersion, however, there is no explicit disclosure of the amount of ethylene glycol utilized.

However, example 8 of EP 851005 discloses method of producing pigment dispersion wherein diethylene glycol wetting agent is used in amount of approximately 7%. Given that EP 851005 discloses the equivalence and interchangeability of ethylene glycol wetting agent with diethylene wetting agent (page 7, lines 37-40), it would have been obvious to one of ordinary skill in the art to also use ethylene glycol in amount of approximately 7% when producing pigment dispersion, and thus, one of ordinary skill in the art would have arrived at the claimed invention.

Allowable Subject Matter

11. Claims 29 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 29 would be allowable if rewritten in independent form as described above given that there is no disclosure or suggestion in EP 851005 that the ink comprises vinyl polymer

obtained from (a) silicon macromer or (meth)acrylamide, (b) polymerizable unsaturated monomer having salt-producing group, and (c) monomer copolymerizable with (a) and (b).

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

EP 978547 discloses ink comprising surface treated pigment, surfactant, solvent, water, and resin, however, there is no disclosure of method of producing pigment dispersion as required in the present claims.

EP 896986 discloses method of making pigment dispersion utilizing oxidation treated carbon black, however, there is no disclosure of wetting agent as presently claimed and no disclosure that the carbon black is modified with hydrophilic group as presently claimed.

EP 104337 discloses ink comprising surface treated pigment, however, there is no disclosure of method of producing pigment dispersion as required in the present claims.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

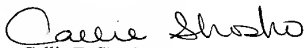
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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
5/29/04